American Academy of Actuaries

Actuaries and Own Risk and Solvency Assessment (ORSA)

An Own Risk and Solvency Assessment (ORSA) requires insurers and insurance groups to perform internal risk assessments of their current and future solvency positions under different scenarios and provide regulators with a better understanding of their ability to withstand financial stress. This is one component of a broader enterprise risk management (ERM) framework. Risk management and assessment are core components of actuarial practice, and through their extensive education and experience, actuaries are adept at identifying, measuring, assessing, and evaluating risk.

While current regulatory guidance on ORSA does not prescribe an actuarial role, actuaries likely will be involved in ORSA—either as part of the report formulation at an insurer or as part of an oversight team from a regulatory perspective. Actuaries, relying on their experience in analyzing complex technical risk-related topics, have the skills and perspective needed to make an ORSA a valuable tool for regulators, management teams, and company boards. The American Academy of Actuaries' ORSA Subgroup developed this paper to provide an overview of the key content in each section of an ORSA and outline components of an ORSA for which actuarial input may be particularly useful.

Actuarial Qualifications and Expertise

It may be helpful to first understand some general background in terms of qualifications and expertise that actuaries possess and are particularly relevant to supporting an ORSA. These include:

Education

Actuaries must take a series of examinations on a range of insurance, financial, and risk-related topics to obtain their credentials. The examinations cover basic actuarial concepts on interest theory, contingencies, investments basics, as well as specialized tracks on different lines of insurance, ERM, and retirement benefits.

Three aspects of the actuarial education process are important to creating professional competency in general risk assessment:

- Basic actuarial education requires that actuaries have an extremely high degree of competency in specialized functions in insurance, investments, and accounting. This includes study in investment topics such as economics, corporate finance, securities analysis, options and derivatives, asset-liability management, and hedging strategies. Actuaries are recognized experts in modeling financial-security programs including pensions, private insurance, and government programs.
- Specific ERM education through the Chartered Enterprise Risk Analyst (CERA) educational program expands on the specific risk management education of actuaries with the objective of educating future risk-management specialists. The CERA syllabus requires that the actuary master such topics as the drivers and practical aspects of ERM, relevant regulation and regulatory capital requirements, and ERM standards and good practice in use around the world.
- Required continuing education includes identification of new risks, evolving risk assessment techniques, and changes in regulations.

Experience

Actuaries typically are focused in a specific area of practice: life insurance, property and casualty insurance, health insurance, or pensions. Within these practice areas, most actuaries are even more specialized. Many practice in areas in which they commonly consider the impact of low-frequency and high-severity events such as extreme market conditions, pandemics, or hurricanes.

Traditional actuarial functions, such as pricing and reserving for insurance, require not just an estimate of the central tendencies of likely future outcomes, but also the variability around those estimates. Both often include a margin for risk variability, and development of that margin requires assessments of the risk inherent in those activities and the variability of that risk. Further, actuaries apply risk assessment techniques that account for the nature, scale, complexity, and correlation of a wide range of risks and that incorporate risk-mitigation strategies. These processes can be adapted to answer the questions posed by an ORSA.

Professionalism

The U.S. actuarial profession has developed assurances to serve the public interest and ensure actuaries are professionally accountable. Actuaries practicing in the United States follow the

American Academy of Actuaries
Objective. Independent. Effective.™
1850 M Street NW • Suite 300 • Washington, DC 20036 • 202.223.8196 • www.actuary.org

Code of Professional Conduct, and the Actuarial Standards of Practice (ASOPs) promulgated by the Actuarial Standards Board (ASB) provide practicing actuaries with a basis for assuring that their work will conform to appropriate practices.

The ASOPs provide guidance to actuaries but also important information to the users of actuarial services, especially in describing the work actuaries are expected to perform. In 2012, the ASB promulgated ASOP No. 46, *Risk Evaluation in Enterprise Risk Management*, and ASOP No. 47, *Risk Treatment in Enterprise Risk Management*. These standards help to assure that actuarial work in the ERM area has a consistent and high level of quality. Under those standards, an actuary should consider a broad range of information about the risks of an insurer and its risk management program in the process of performing an evaluation of the risks. As the practice of ERM continues to evolve, updates to risk-management standards will be considered appropriately.

Outline of ORSA Sections, Key Content, and Areas for Actuarial Input

The National Association of Insurance Commissioners' (NAIC) ORSA Guidance Manual provides an overview of three general topics (divided by sections) that would need to be included in an ORSA report. Below is a brief summary of some of the key content in each section and our examination of ways in which the actuarial perspective and skill set can be used to enhance the value of an ORSA.

ORSA Section 1—Description of the Insurer's Risk Management Framework

Section 1 of the NAIC ORSA Guidance Manual defines the following as key principles that should be part of an effective enterprise risk management (ERM) framework.

- **Risk culture and governance:** Governance structure that clearly defines and articulates roles, responsibilities, and accountabilities; and a risk culture that supports accountability in risk-based decision making.
- **Risk identification and prioritization:** Risk identification and prioritization process that is key to the organization; responsibility for this activity is clear; the risk management function is responsible for ensuring that the process is appropriate and functioning properly at all organizational levels.
- **Risk appetite, tolerances, and limits:** A formal risk appetite statement, and associated risk tolerances and limits are foundational elements of risk management for an insurer; understanding of the risk appetite statement ensures alignment with risk strategy by the board of directors.
- **Risk management and controls:** Managing risk is an ongoing ERM activity, operating at many levels within the organization.
- **Risk reporting and communication:** Provides key constituents with transparency into the risk-management processes and facilitates active, informal decisions on risk-taking and management.

Using their experience, education, and skills in the following areas, will allow actuaries to help ensure that the overall ERM framework and an insurer's ORSA report incorporates the following components:

Scenario and stress test analysis: Designing and applying various scenarios and stress tests, including non-quantifiable elements such as reputation, requires an understanding of the actuarial liabilities. This type of analysis allows stakeholders to understand the order of magnitude of all risks, which support the risk prioritization that builds the risk profile of the company.

Risk aggregation: Actuaries can support the alignment of the risk appetite statements, risk tolerance, and risk limits to the overall mission and vision of the company, as well as the level of capital the company is holding.

Risk mitigation and ERM processes: Actuarial skills are essential to setting up and implementing risk transfer programs, such as reinsurance and hedging, but are also key for risk aware pricing and product development, ALM, and other key functions.

Communication: Measuring the risk embedded in complex insurance products and their interaction requires an understanding of the actuarial models involved. The communication of the risk measurement for decision making purposes, as well as the strength and limitation of the measures, needs to be transparent and unbiased. Actuaries have such an understanding of assets and liabilities as well as their interaction, and are bound by ASOPs to assure appropriate communication to decision makers.

The primary drafters of this publication are members of the American Academy of Actuaries' Enterprise Risk Management Committee's Own Risk and Solvency Assessment (ORSA) Subgroup. The members of the Subgroup that drafted this paper include: Patricia Matson, MAAA, FSA, chair; Michael Angelina, MAAA, CERA, ACAS; Thomas DeFalco, MAAA, FCAS; Aaron Halpert, MAAA, ACAS; David Ingram, MAAA, FSA, CERA; David Sandberg, MAAA, FSA, CERA; and David Schraub, MAAA, FSA, CERA.

ORSA Section 2—Insurer's Assessment of Risk Exposures

Section 2 of the guidance manual outlines a number of components that should be included in an ORSA report for each of the principle categories highlighted in Section 1:

- High-level summary of the quantitative and/or qualitative assessments of risk exposure in both normal and stressed environments for each material risk category.
- Consideration of a range of outcomes using risk assessment techniques that are appropriate to the nature, scale, and complexity of the risks.
- Application to risk categories that may include, but are not limited to, credit, market, liquidity, underwriting, and operational risks.
- Assessment of the expected frequency, severity, and speed of onset of each risk to support risk prioritization and risk owners.
- Ongoing monitoring and mitigation of key risks.

As we previously noted, risk assessment is a core component of actuarial practice. A full range of frequency and severity risk assessments, rather than just specific point estimates, are key to an actuarial approach to pricing, reserving, and ERM. Actuaries have applied risk-assessment techniques to look at the nature, scale, and complexity of a wide range of risks, considering assets and liabilities as well as their interactions. In fact, every risk-mitigation technique that is used by an insurer, such as insurance product design, reinsurance, hedging, and asset-liability management, includes some degree of actuarial analysis.

This actuarial risk-assessment process can be adapted to answer the questions posed by an ORSA. The idea of looking at risk in a stressed environment is a straightforward application of the basic actuarial approach to risk assessment that is already applied in many situations. There are risks (or aspects of risks) in which the information that would be needed to reliably apply actuarial techniques to assess a risk is not available or is highly expensive to obtain. In these cases, actuaries commonly recommend mitigation of those risk aspects. This might apply to loss situations that are rare or that may never have occurred.

ORSA Section 3—Group Assessment of Risk Capital and Prospective Solvency Assessment

Section 3 of the guidance manual builds on the risk management framework presented in Section 1, and layers on management's determination of the adequacy of the organization's financial resources (capital) to meet its business needs based on the risks that the organization faces. This assessment of capital adequacy will be dependent on a variety of factors including the selected time horizon, valuation methods, and regulatory and rating agency capital adequacy criteria and/or risk capital metrics. Once these selections are made, stress testing and/or stochastic modeling are employed to determine capital adequacy. This ORSA section also describes the actions management is expected to take under a variety of capital assessment outcomes to assure its ability to execute the business plans.

Demonstrated actuarial skills relative to this section typically include experience with pricing and reserving models, accounting and valuation methods, stress testing, economic capital modeling, assessing the impact of operational and business mix changes as well as risk and risk mitigation modeling. Additionally, the actuary is experienced in teaming with other insurance, finance, and risk professionals to assure that the qualitative aspects of the ORSA are fully and appropriately integrated with the quantitative measurements used.

As such, the actuary can play a significant role in each of the following areas:

- Data retrieval and synthesis
- Product development
- Underwriting guidelines and their impact on underwriting risk
- Catastrophe risk and the interpretation of catastrophic model output
- Asset/liability management
- Modeling customer behavior
- Reinsurance
- Regulatory and rating agency solvency capital requirements
- Economic capital modeling
- Stochastic models and stress testing
- Aggregation and diversification

Conclusion

It has been said that "ORSA would be a game changer" in the U.S. regulatory review process. While aspects of the ORSA may be revolutionary, however, the way in which both regulators and actuarial professionals participate in this process will be evolutionary. An important step in the U.S. regulatory structure occurred almost 30 years ago through changes in insurance standard valuation laws to require a formal signed actuarial opinion and the actuarial profession's creation of accompanying professional standards. This progress was a result of an explicit recognition by regulators and supervisors of the important and unique professional role actuaries contribute to ensuring insurer solvency.

Other subsequent requirements – actuarial certification for new product filings and actuarial valuation for illustrations used for Universal Life insurance products – emerged from

similar needs for recognized actuarial professionalism to support the public interest. We suggest this role can and should be extended to the ORSA process, which is an effort to make risk more transparent than just the documentation of the assumptions. While documentation of how a number was calculated is an important professional responsibility, it is equally important to clarify limitations on the numbers and the important sensitivities that are relevant. The U.S. actuarial profession is working to ensure that in addition to the numbers needed for an ORSA, we also can adequately capture their meaning for today and for tomorrow.

Appendix: Relevant Actuarial Standards of Practice (ASOPs)

Below is a list of ASOPs that may be relevant to the work performed in support of ORSA. It is the responsibility of individual actuaries to determine which standards are applicable to their work.

ASOP No. 1—Introductory Actuarial Standard of Practice
ASOP No. 7—Analysis of Life, Health, or Property/Casualty Insurer Cash Flows
ASOP No. 10—Methods and Assumptions for Use in Life Insurance Company Financial Statements Prepared in Accordance with U.S. GAAP
ASOP No. 11—Financial Statement Treatment of Reinsurance Transactions Involving Life or Health Insurance
ASOP No. 12—Risk Classification (for All Practice Areas)
ASOP No. 18—Long-Term Care Insurance
ASOP No. 19—Appraisals of Casualty, Health, and Life Insurance Businesses
ASOP No. 20—Discounting of Property/Casualty Unpaid Claim Estimates
ASOP No. 21—Responding to or Assisting Auditors or Examiners in Connection with Financial Statements for All Practice Areas
ASOP No. 22—Statements of Opinion Based on Asset Adequacy Analysis by Actuaries for Life or Health Insurers
ASOP No. 23—Data Quality
ASOP No. 25—Credibility Procedures
ASOP No. 38—Catastrophe Modeling (for All Practice Areas)—revision pending
ASOP No. 41—Actuarial Communications
ASOP No. 43—Property/Casualty Unpaid Claim Estimates
ASOP No. 46—Risk Evaluation in Enterprise Risk Management
ASOP No. 47—Risk Treatment in Enterprise Risk Management
Exposure Draft on Modeling